

CLAIMS

1. A method of reconstituting an animal embryo, the process comprising transferring a diploid nucleus into an oocyte which is arrested in the metaphase of the second meiotic division without concomitantly activating the oocyte, keeping the nucleus exposed to the cytoplasm of the recipient for a period of time sufficient for the embryo to become capable of giving rise to a live birth and subsequently activating the reconstituted embryo while maintaining correct ploidy.
2. A method as claimed in claim 1, in which the animal is an ungulate species.
3. A method as claimed in claim 2, in which the animal is a cow or bull, pig, goat, sheep, camel or water buffalo.
4. A method as claimed in any one of claims 1 to 3, in which the donor nucleus is genetically modified.
5. A method as claimed in any one of claims 1 to 4, wherein the diploid nucleus is donated by a quiescent cell.
6. A method as claimed in any one of claims 1 to 5, wherein the recipient oocyte is enucleate.
7. A method as claimed in any one of claims 1 to 6, wherein nuclear transfer is achieved by cell fusion.
8. A method as claimed in any one of claims 1 to 7, wherein the animal is a cow or bull and wherein the donor

nucleus is kept exposed to the recipient cytoplasm for a period of from 6 to 20 hours prior to activation.

5 9. A method as claimed in any one of claims 1 to 8, wherein correct ploidy is maintained during activation by microtubule inhibition.

10 10. A method as claimed in claim 9, wherein microtubule inhibition is achieved by the application of nocodazole.

11 11. A method as claimed in any one of claims 1 to 8, wherein correct ploidy is maintained during activation by microtubule stabilisation.

15 12. A method as claimed in claim 11, wherein microtubule stabilisation is achieved by the application of taxol.

20 13. A method of preparing an animal, the method comprising:

- 25 (a) reconstituting an animal embryo as claimed in any preceding claim;  
(b) causing an animal to develop to term from the embryo; and  
(c) optionally, breeding from the animal so formed.

30 14. A method as claimed in claim 13, wherein the animal embryo is further manipulated prior to full development of the embryo.

15. A method as claimed in claim 14, wherein more than one animal is derived from the embryo.

16. A reconstituted animal embryo which is capable of giving rise to a live birth and is prepared by a method as claimed in any one of claims 1 to 12.

5 17. An animal prepared by a method as claimed in any one of claims 13 to 15.

18. An animal developed from an embryo as claimed in claim 16.